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10/527,374	03/10/2005	James R Beckman	06-351-US	5724

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EXAMINER	
SHUMATE, ANTHONY R	

ART UNIT	PAPER NUMBER
1797	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/527,374	BECKMAN, JAMES R	
	Examiner	Art Unit	
	ANTHONY SHUMATE	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 May 2009 and 04 June 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *1-11* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 May 2009* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *20 May 2009 and 4 June 2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The Amendment filed 20 May 2009 has been entered and fully considered.

2. Claims 1-20 are pending, claims 1-11 withdrawn from consideration, of which claims 12 and 19 were amended. The amendments of claims 12 and 19 are supported by the originally filed disclosure.

3. The previous objection to the IDS filed 2 December 2005 is withdrawn in light of Applicant's submission of additional information disclosure statements.

4. The previous drawing objections, except the drawings numerous reference characters not mentioned in the description, are withdrawn in light of Applicant's amend to the drawing. The previous drawing objection to the numerous reference characters not mentioned in the description was altered because of the amendments to the drawings.

5. The previous 35 USC 112 rejections are withdrawn in light of Applicant's amendments to the claims.

Information Disclosure Statement

6. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a

separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Drawings

7. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the numerous reference characters not mentioned in the description. Each failure of reference characters not mentioned in the description will not be detailed because of the high occurrence of this failure. Example of this failure are 114', 114", 190', 192'at figure 3 and 245 at figure 4 and 320 at figure 7 and 410 at figure 8. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

8. In addition to Replacement Sheets containing the corrected drawing figure(s), applicant is required to submit a marked-up copy of each Replacement Sheet including

annotations indicating the changes made to the previous version. The marked-up copy must be clearly labeled as "Annotated Sheets" and must be presented in the amendment or remarks section that explains the change(s) to the drawings. See 37 CFR 1.121(d)(1). Failure to timely submit the proposed drawing and marked-up copy will result in the abandonment of the application.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 12-14, 16, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by BECKMAN (WO 01/07134 A1) ("BECKMAN134").

For instant claim 12, BECKMAN134 teaches at the figures particularly figure 3B and page 13 a heat-releasing chamber (generally the side of 210 where 202 enters) having an inlet (generally 59 entering 210) and an outlet (generally 212 exiting 210) for a gas at least partially saturated with a component absorbable by a desiccant, and an inlet (generally 202 entering 210) and an outlet (generally 204 exiting 210) for a desiccant.

For instant claim 12, BECKMAN134 teaches at the figures particularly figure 3B and page 13 a heat-absorbing chamber (generally the side of 210 where 57 enters) having an inlet and an outlet for a gas to be heated.

For instant claim 12, BECKMAN134 teaches at the figures particularly figure 3B and page 13 a shared slip stream pipe (55, 57 and 59) coupled to both the gas inlet (generally 59) to the heat-releasing chamber and the gas inlet (generally 57) to the heat-absorbing chamber.

For instant claim 12, BECKMAN134 teaches at the figures particularly figure 3B and page 13 a common heat transfer wall capable of providing heat exchanged (i.e. thermal communication) between the heat-releasing chamber and the heat absorbing chamber.

For instant claim 12, BECKMAN134 teaches at the figures particularly figure 3B and page 13 a desiccant regenerator (200) having an inlet and an outlet, wherein the outlet (generally 202) provides a regenerated desiccant stream to the desiccant inlet of the heat-releasing chamber, and wherein the inlet (generally 204) receives a spent desiccant stream from the desiccant outlet of the heat-releasing chamber.

For instant claim 13, BECKMAN134 teaches at the figures particularly figure 3B and page 13 wherein the desiccant inlet (generally 202 entering 210) of the heat-releasing chamber is situated to place the desiccant onto the heat-releasing side of the heat transfer wall.

For instant claim 14, BECKMAN134 teaches at the figures particularly figure 3B and page 13 allowing an equal amount of liquid water to evaporate into the remaining saturated carrier gas stream 57, and an inlet (generally 57 entering 210) and an outlet (generally 60 exiting 210) in the heat-absorbing chamber.

The limitation "for a liquid having a component evaporable into the gas" is intended use for the inlet and outlet in the heat-absorbing chamber and is not germane to patentability.

For instant claim 16, BECKMAN134 teaches at the figures particularly figure 3B and page 13 wherein the desiccant regenerator (200) applies heat (via natural gas) to the spent desiccant for regeneration.

For instant claim 20, BECKMAN134 teaches at page 13 the desiccant is lithium bromide.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over BECKMAN (WO 01/07134 A1) ("BECKMAN134").

For instant claim 15, BECKMAN134 does not specifically teach wherein the inlet for the liquid having the evaporable component is situated to place the liquid onto the heat-absorbing side of the heat transfer wall. But, BECKMAN134 teaches at the figures particularly figure 3B and page 13 an inlet (generally 57 entering 210) which is situated to place the fluid (57) onto the heat-absorbing side of the heat transfer wall. Also, BECKMAN134 teaches at the figures particularly figure 3B and page 13 allowing an equal amount of liquid water to evaporate into the remaining saturated carrier gas stream (57). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the liquid water to the inlet (generally 57 entering 210) of the device of BECKMAN134 to increase the concentration of the water vapor in outlet stream (60).

13. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over BECKMAN (WO 01/07134 A1) ("BECKMAN134") in view of CRAWFORD (US 2,433,741).

For instant claim 18, BECKMAN134 does not specifically teach wherein the desiccant regenerator contacts the spent desiccant with ambient air for regeneration. But, BECKMAN134 does teach at the figures particularly figure 3B and page 13 wherein the desiccant regenerator (200) contacts the spent

desiccant with a gas (via natural gas) for regeneration. Also, CRAWFORD teaches at the figures particularly figure 2 and column 6 lines 44-52 wherein the brine concentrator (desiccant regenerator) contacts the spent brine (desiccant) with air taken from outdoors (ambient air) for concentrating (regeneration). It would have been obvious to one of ordinary skill in the art at the time the invention was to provide outdoor air regeneration technique of CRAWFORD to the device of BECKMAN134, since outdoor air is easily obtained.

14. Claims 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over BECKMAN (WO 01/07134 A1) ("BECKMAN134") in view of SPATZ et al. (US 4,939,906).

For instant claim 17, BECKMAN134 does not specifically teach wherein the desiccant regenerator contacts the spent desiccant with heated air for regeneration. But, BECKMAN134 does teach at the figures particularly figure 3B and page 13 wherein the desiccant regenerator (200) contacts the spent desiccant with a combustion gas (via natural gas) for regeneration. Also, SPATZ et al. teaches at the figures particularly figure 1 and column 3 lines 9-26 wherein the desiccant regenerator (46) contacts the spent desiccant with heated air (via air heater 48) for regeneration. It would have been obvious to one of ordinary skill in the art at the time the invention was made to simply substitute combustion gas (via natural gas) of BECKMAN134 with the heated air of SPATZ for the benefit of preventing combustion gases from being mixed with the desiccant.

For instant claim 19, BECKMAN134 does not specifically teach a heat exchanger situated between the heat releasing chamber and the desiccant regenerator, the heat exchanger transferring heat from the regenerated desiccant stream to the spent desiccant stream. But, BECKMAN134 does teach at the figures particularly figure 3B and page 13 a heat releasing chamber (generally 210), a desiccant regenerator (200), a regenerated desiccant stream (202), and a spent desiccant stream (204). Also, SPATZ et al. teaches at the figures particularly figure 1 and column 3 lines 9-26 a heat exchanger (44) situated between the heat releasing chamber (26) and the desiccant regenerator (46), the heat exchanger (44) transferring heat from the regenerated desiccant stream to the spent desiccant stream. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the heat exchanger of SPATZ et al. with the device of BECKMAN134, in order to reduce the amount of energy needed to heat the desiccant.

Response to Arguments

15. Applicant's arguments filed 20 May 2009 have been fully considered but they are not persuasive.

16. Applicant's arguments with respect to claims 12-20 have been considered but are moot in view of the new ground(s) of rejection prompted by the information disclosure statement 20 May 2009.

Conclusion

17. Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 20 May 2009 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY SHUMATE whose telephone number is (571)270-5546. The examiner can normally be reached on M-Th 9-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571)272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A.S./
Examiner Art Unit 1797

/Jason M. Greene/
Primary Examiner, Art Unit 1797